

CLAIMS

I claim:

1. An engine comprising:
a pair of work members each including a 1-way clutch comprising a drive race and a driven race,
a combustion cylinder, a piston for reciprocating in said cylinder, a piston rod connected to the piston and transmitting power to a periphery of the drive race by a first means;
each driven race secured on a power output shaft;
an idler gear located between and driven by the drive races so that the drive races maintain synchronous motion between the two out of phase pistons as the driven race transmits the power to the shaft.
2. The engine of claim 1 wherein said first means comprises a rack gear on the end of said rod, said drive race periphery having a pinion gear engaging said rack gear, and a guide maintaining alignment between the rack and gear.
3. The engine of claim 1 wherein said first means comprises a belt or chain secured to said rod and said periphery and a guide maintaining alignment between the rod and periphery.
4. The engine of claim 1 further comprising a spring contacting a node on said rods when the pistons near top dead center.
5. The engine of claim 1 further comprising:
a cylinder head shaped like a parabolic reflector, an igniter at the focus of the reflector, the piston having a flat crown facing the reflector.
6. The engine of claim 1 further comprising means for delivering a first primary fuel and minimal amount of a secondary fuel, the secondary fuel being hydrogen and having a flame speed greater than the first fuel.
7. The engine of claim 1 comprising a flywheel wherein the flywheel moderates combustion pressures in the combustion cylinder.
8. The engine of claim 1 which includes more than one independent pairs of the work members and more than one of the pistons cycle through a power stroke overlap spaced apart.
9. The engine of claim 1 comprising a plurality of pairs of work members and means for selectively activating and deactivating the pairs.
10. The engine of claim 1 being interchangeable between a 2-stroke and a 4-stroke which includes;

more than one independent 2-stroke pair disposed along the shaft in which an idler engaging two independent pairs effects a 4-stroke engine, a disengagement of the idler reverts back to a 2-stroke engine and reengagement reverts again to a 4-stroke.

11. A 1-way clutch comprising;
 - a first race and a second race;
 - a torque transmitting unit; and
 - the unit carried by the first race wherein the unit transmits the torque between the races perpendicular to a radial of the 1-way clutch.
12. The 1-way clutch of claim 11 comprising;
 - a first contact surface on the first race and a second contact surface on the second race;
 - the first contact surface having a V-groove and the second contact surface beveled to fit the V-groove wherein non-slip contact is effected.
13. The combination of claim 11 which includes;
 - a hydraulic element;
 - a unit piston;
 - a pivotal trigger;
 - a resilient member; and
 - the trigger effecting communication between the second race and the hydraulic element wherein a first direction change in the second race actuates the hydraulic element to move the unit piston into contact with the second race which compresses the resilient member so that torque is transmitted between the second race and the first race and a change to a second direction actuates the resilient member to move the piston out of the contact so that the torque transmission is prevented.
14. The combination of claim 11 in which the unit is replaceable in whole.
15. The combination of claim 11 in which the unit comprises;
 - a lever;
 - the lever including a spring load;
 - a pivotal trigger;
 - a unit piston;
 - the lever communicating with the unit piston; and
 - the trigger communicating with the second race and the lever wherein a first direction change

causes the trigger to actuate the lever to move the unit piston into contact with the second race so that the torque is transmitted between the second race and the first race and a change to a second direction actuates the spring load to reverse the lever that disengages the unit piston from the second race to prevent the transmission.

16. The combination of claim 15 in which a unit piston rod connects the lever and the unit piston.

17. The combination of claim 11 in which the second race includes;

- a breakaway embodiment further comprising;

- a first rim, the first rim including keystone shaped extensions along its outer edge;

- a second rim, the second rim including keystone shaped extensions along its outer edge;

- a peripheral band, the band comprising interlocking sections; and

- the sections including keystone shaped parts along both edges wherein the parts interlock with the extensions to prevent radial separation of the embodiment while allowing axial separation.

18. The combination of claim 17 in which the embodiment includes an equivalent dowel wherein the dowel prevents the radial separation of the embodiment.

19. The combination of claim 17 which includes:

- a shaft;

- the shaft supporting a first journal box and a second journal box;

- at least one first spoke linking the first rim to the first journal box;

- at least one second spoke linking the second rim to the second journal box; and

- a first snap ring adjacent the first journal box and a second snap ring adjacent the second journal box wherein axial separation of the embodiment is prevented.

20. The combination of claim 11 in which the 1-way clutch includes;

- a shaft;

- the second race comprising an extension along the axis of the shaft;

- the extension comprising a rim;

- a first radius from the axis of the shaft to the rim of the extension;

- a second radius from the axis of the shaft to the rim of the second race;

- the first radius being shorter than the second radius; and

- a force wherein the force to the first radius is greater than the force to the second radius.